AMENDMENTS TO THE CLAIMS

Please cancel claims 1-17

Please add the following new claims:

1. (new) A method for computing a value, the method comprising:

providing data, a program of computable functions to describe computation of the value to be computed, and one or more uninstantiated variables;

encoding the program as a computable function;

continualizing the encoded program;

expressing the continualized, encoded program as a differential operator;

realizing the differential operator in a physical medium;

extracting from the physical medium a solution for the continualized, encoded program; and

outputting values for the one or more instantiated variables.

2. (new) The method of claim 1 wherein uninstantiated variables further includes storing the computed value.

3. (new) The method of claim 1 further includes compiling the data and program of computable functions in terms of an assembly code expressed from a set of discrete computable functions.

4. (new) The method of claim 3 wherein encoding the program of computable functions further includes converting the assembly code into discrete partial recursive functions.

5. (new) The method of claim 1 wherein continualizing the encoded program further includes:

determining an interpolating function;

parameterizing the interpolating function; and

transforming the parameterized interpolating function into a first-order, time-dependent, differential equation.

6. (new) The method of claim 1 wherein expressing the continualized, encoded program as a differential operator further includes formulating a corresponding quantum canonical Hamiltonian operator.

7. (new) The method of claim 6 wherein formulating the corresponding quantum canonical Hamiltonian operator further includes:

formulating a problem Lagrangian;

converting the problem Lagrangian into a problem Hamiltonian; and

converting the problem Hamiltonian into the quantum, canonical Hamiltonian.

8. (new) The method of claim 1 wherein instantiating the differential operator in a physical medium further includes converting the differential operator into an excitation field.

9. (new) The method of claim 1 wherein extracting a solution for the continualized, encoded program further includes converting emitted radiation into a coherent spectrum of intensities and corresponding frequencies.

10. (new) The method of claim 1 wherein outputting the instantiated variables further includes storing the computed value.

11. (new) A system for computing a value, the system comprising:

a control and scheduling system;

a function input that converts a program of computable functions into an excitation field Hamiltonian;

an excitation generator that instantiates the excitation field Hamiltonian into an excitation field;

a quantum processor that converts the excitation field into emitted radiation;

a transducer that converts the emitted radiation into a spectrum of intensity and corresponding frequency data; and

coherent memory that stores and maintains a running average of the spectrum of intensity and corresponding frequency data.

12. (new) The system of claim 11 wherein the control and scheduling system further includes iterated execution of the excitation generator, the quantum processor, and the transducer until the average spectrum of intensities converges to a constant value.

13. (new) The system of claim 11 wherein the excitation field excites polymer fragment molecule nodes in the lattice of the quantum processor.

14. (new) The system of claim 13 wherein the excited polymer fragment molecule nodes emit coherent radiation.

15. (new) A quantum computer processor, the quantum computer processor comprising:

a lattice of one or more polymer molecule nodes having four orthogonal sides;

a first insulating boundary having a first end and a second end located along a first side of the lattice;

a second insulating boundary having a first end and a second end located along a second side of the lattice and opposite the first side of the lattice;

a first reflective plate fastened to the first ends of the first and second insulating boundaries and located along a third side of the lattice; and

a second reflective plate fastened to the second ends of the first and second insulating boundaries located along a fourth side of the lattice opposite the third side of the lattice.

16. (new) The apparatus of claim 15 wherein the nodes are polymer fragment molecules.

17. (new) The apparatus of claim 15 wherein the one or more nodes are connected by one or more forward and lateral bonds.

18. (new) The apparatus of claim 15 wherein the forward and lateral bonds are polymer fragment molecules.

19. (new) The apparatus of claim 15 wherein the lattice is a two-dimensional planar arrangement of nodes.

20. (new) The apparatus of claim 15 wherein the lattice is a three-dimensional arrangement of nodes.